Communicable Disease UPDATE

Newsletter of the Bureau of Communicable Disease Control, Massachusetts Department of Public Health Vol. 5, No. 4 Fall 1997

Beyond nonoxynol-9

New developments in microbicidal research

An interview with Zeda Rosenberg, PhD, Senior Scientist for Adult Prevention Research, National Institutes of Health.

Q. Is current research being directed at the development of microbicides?

A. The development of alternative methods of reducing the spread of sexually transmitted diseases is an area of major interest. Increased interest in the development of female-controlled methods for the prevention of sexually transmitted disease, coupled with continuing concern regarding the potentially irritating effects of nonoxynol-9, have supported the need for microbicide research.

Q. Can you briefly describe some of the new products being developed as part of current research?

A. One microbicide works similarly to the well-known spermicide nonoxynol-9 by killing STD pathogens before they establish infection. However, new products are being designed to be less irritating to the vagina. Vaginal irritation may counter the benefit of nonoxynol-9 by allowing HIV increased access through irritated vaginal tissues. Several new microbicides build on the natural defense mechanisms of the vagina to provide protection. At least one such product, BufferGel, is currently in NIH phase I clinical trials.

Q. So BufferGel and similar products may be able to prevent STD infection in the vagina and not irritate vaginal tissues?

A. Yes, BufferGel is designed to maintain the natural acidity of the vagina and block the neutralizing effect caused by semen. By maintaining the acidity of the vagina (pH 4), BufferGel is expected to inhibit sperm, HIV, and many other acid-sensitive STD pathogens without disturbing the normal flora of the vagina.

A second category of microbicides are products that interfere with HIV entry into susceptible cells in the vagina. At least one of these products, Pro 2000, is currently in Phase I clinical trials in Antwerp and London.

Q. Does NIH anticipate clinical trials of any of these products in the United States within the next year?

A. Depending upon the outcome of the European studies of Pro 2000, additional trials may begin in the United States next year.

Q. Are there any other developments?

A. A third type of product may be described as a "topical therapeutic" and is intended to inhibit replication of viruses once they have entered cells. These products are designed to stop infection from becoming systemic. At least one of these products may be moving to clinical trials soon.

Q. Can you be more specific about the time frame we can expect on the development and trial phase of any of these topical therapeutics?

A. It is hoped that a Phase I safety study on one such topical therapeutic will begin next year.

* ***Dr. Rosenberg will participate in the STD Division's Annual Update in November. See Save The Dates, pg. 8.***

Flu season–adult vaccines

To help protect adults from infectious diseases, the Massachusetts Immunization Program (MIP) distributes influenza, pneumococcal, and tetanus-diphtheria (Td) vaccines for adults. These vaccines are also available for younger individuals who need them because of medical conditions, or because they are household contacts of persons with risk factors.

Persons with certain conditions that place them at higher risk for the complications of influenza should be vaccinated in October or November. The MDPH recommends vaccination for all individuals aged ≥65 years; younger individuals (≥6 mo. of age) with heart or lung disease, weakened immune systems, or other chronic medical conditions that place them at increased risk for the complications of influenza; women who will be in their second or third trimester of pregnancy during flu season; and others.

During this flu season, the MIP will distribute 615,000 doses of flu vaccine at no charge to local boards of health. The influenza vaccine distributed this year includes A/Johannesburg-like (H1N1), A/Nanchang-like (H3N2), and B/Harbin-like strains of influenza virus. Although the MIP is urging people to be vaccinated in the fall, flu shots can be given at any time during the influenza season, which extends into March.

Inside

Epidemiology

Pilot hepatitis A vaccination campaign

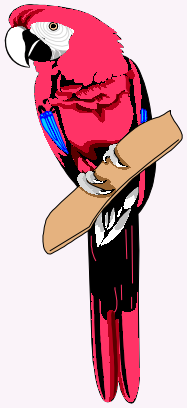
There has been an increased number of cases of hepatitis A in men who have sex with men (MSMs) in the Boston and Provincetown areas of Massachusetts. A hepatitis A vaccination campaign for this high-risk population will be piloted in these areas. The campaign will include a mailing to healthcare providers on the recommendation for hepatitis A vaccination of MSMs and a media campaign encouraging MSMs with insurance to go to their healthcare provider for vaccination and for uninsured MSMs to go to selected vaccination clinics. The pilot project is a collaboration between the MDPH, the Boston Public Health Commission, the Provincetown Board of Health, the Fenway Community Health Center and Outer Cape Health Services. Please note that hepatitis A vaccine is not available from the Massachusetts Immunization Program except at pilot project sites for uninsured MSMs. For further information on the campaign, contact Tim Broadbent at (617) 983-6802.

Rabies epidemic persists

The raccoon rabies outbreak, first documented in Massachusetts in 1992, has spread to approximately 90% of cities and towns in Massachusetts. Many towns which had their first cases in 1992 through 1994 may have had a lull in cases in the past two years. This is because as raccoon rabies moves through an area, it may kill up to 90% of the raccoon population. It usually takes 3 to 4 years before the raccoon population reestablishes itself to the point where it is once again vulnerable to epidemic spread. Surveillance so far in 1997 suggests that cases of rabies in animals are rising again, and a second-wave effect is occurring in parts of the state. The message for residents is clear: raccoon rabies has not gone away, and people should continue to take precautions to protect themselves and their pets. Health care providers and public health workers should also realize that the persistence of raccoon rabies means that all human exposures to high-risk animals (including bats, raccoons, skunks, woodchucks, foxes and stray cats) should be taken seriously.

For the birds: update on Psittacosis

Birds have always been popular as pets. Unfortunately, many people who buy pet birds are not aware that birds may have diseases that can be transmitted to people. Psittacosis, also called parrot fever, is a bacterial disease common to pet birds and a zoonotic disease that can cause illness in people. It is most commonly identified in psittacine birds such as parrots, parakeets, macaws and cockatiels. Psittacosis in both pet birds and people is reportable in Massachusetts. Any suspect human cases should be reported to the Massachusetts Department of Public Health, Division of Epidemiology and Immunization, (617) 983-6800, and any suspect bird cases should be reported to the Massachusetts Department of Food and Agriculture, Bureau of Animal Health, (617) 727-3018, x 131.



During the month of August, psittacosis was detected in a higher than average number of pet birds, and a suspect human case was identified. Acutely infected birds may be lethargic, anorectic, and have ruffled feathers. They may develop a nasal discharge and diarrhea. As the disease progresses, the bird may die. Some birds will completely recover, and others may become chronic carriers. Carriers who are asymptomatic may sporadically shed the bacteria, potentially infecting other birds or people. Confirmation of the disease is by serology or culture. The disease in birds is treatable with antibiotics.

Human infection occurs through the inhalation of the bacteria that has been aerosolized in urine, feces or respiratory secretions from sick birds. The incubation period in humans is usually 7 to 14 days. Symptoms include sore throat, fever, chills, myalgia, cough, and photophobia. Some patients develop pneumonia. Serologic confirmation is essential to verify the diagnosis. Psittacosis in humans is also treatable with antibiotics.

STD clinic pilot study

A behavioral assessment protocol for use by clinicians was piloted at a Cambridge STD clinic over the past year. The protocol involves use of a two-part assessment tool to personalize counseling sessions. The first part, which clients completed in the waiting room, included a self assessment regarding attitudes and beliefs about condoms, as well as several measures of client confidence in using condoms. The second part of the form allowed the nurse to work with the client to "stage" the client's behavior on a continuum regarding condom use. Using a transtheoretical model of behavior change, the staging of the client combines measures of intention with actual behavior in relation to condom use.

Despite the relatively small sample pilot, some intriguing aspects of client response have emerged. One interesting outcome was divergence between clients' beliefs and actions. A number of individuals indicated belief in condom efficacy and personal confidence in their ability to use condoms, but did not think *they* needed to use condoms. These clients stated that even though they may have contracted an STD, generally their partners were "safe."

Other initial results indicate that women interviewed were more likely than men to report consistent condom use. However, even those clients with histories of consistent condom use indicated that they were not confident about their ability to use condoms if a partner disapproves. This applied to men as well as women and points to the need for further research regarding couple negotiation.

Visit our website at:
http://www.magnet.state.ma.us/dph/

Communicable Disease Updates
January—June 1996 vs. January—June 1997: Reported Cases

DISEASE	1996	1997*	% change from 1996
AIDS	603	469	-22%
Botulism	0	0	—
Campylobacter	619	707	+14%
Chlamydia	3,347	3,646	+9%
Cryptosporidiosis	32	15	-53%
E. coli O157:H7	40	40	—
Giardiasis	374	373	—
Gonorrhea	1,080	1,130	+5%
Hepatitis A	106	149	+41%
Hepatitis B (acute)	46	37	-20%
Lyme Disease	94	98	+4%

* Preliminary data. Reporting not yet complete.

DISEASE	1996	1997*	% change from 1996
Measles	9	8	-11%
Invasive Meningococcal Disease (Neisseria)	31	56	+81%
Pertussis	376	277	-26%
Rabies (animal)	54	114	+111%
Rubella	20	1	-95%
CRS**	0	0	—
Salmonellosis	753	523	-31%
S. typhi (Typhoid)	8	12	+50%
Shigellosis	120	107	-11%
Syphilis (early)	135	104	-23%

** Congenital Rubella Syndrome

The Following Diseases Should Be Reported Immediately ! ! ! !

Contact the local board of health where case resides or the Massachusetts Department of Public Health at 617-983-6800 (weekdays) or 617-522-3700 (24 hours / 7days)

Bacterial Meningitis (including suspect)

Botulism (including suspect)

Diphtheria (including suspect)

Haemophilus influenzae (invasive)

Hepatitis A in a foodhandler

Measles (including suspect)

Meningococcal Infection (invasive)

Poliomyelitis (including suspect)

Rabies (Human only)

Rubella, congenital & non-congenital (including suspect)

Tetanus (including suspect)

Any Cluster / Outbreak of Illness

Enteric Illness in a foodhandler should be reported ASAP to the local board of health where the case resides & the board of health where the case works

Any cluster of work-related conditions, regardless of whether or not they are on the reportable list, shall be immediately reported by telephone or other electronic means to the Mass. DPH Occupational Health Surveillance Program; call: 617-624-5632

Other Diseases Reportable to Local Boards of Health

Report as soon as possible

Amebiasis
Anthrax
Babesiosis
Brucellosis
Campylobactor Enteritis
Chickenpox (varicella)
Cholera
Cryptosporidiosis
E. coli O157:H7
Encephalitis
Foodborne Poisonings
Giardiasis
Hansen's Disease
Hemolytic Uremic Syndrome
Hepatitis Type A (non-foodhandler)
Hepatitis Type B (acute or chronic)
Hepatitis Type C (nonA/nonB)
Kawasaki Disease
Legionellosis
Leptospirosis
Listeriosis
Lyme Disease
Malaria
Meningitis (viral)
Mumps
Pertussis (Whooping Cough)
Psittacosis
Rabies (animal)
Reye Syndrome
Rheumatic Fever
Rocky Mountain Spotted Fever
Salmonellosis (including typhoid)
Shigellosis
Toxic Shock Syndrome
Toxoplasmosis
Trichinosis
Tularemia
Yellow Fever
Yersiniosis

Cases of Emerging and Potentially Emerging Infections;

call MDPH: (617)-983-6800

- Cyclospora
- Dengue
- Ehrlichiosis
- Group A Streptococcus (invasive)
- Hantavirus
- Hepatitis E
- Hepatitis G
- Plague
- Viral Hemorrhagic Fevers

Diseases Directly Reportable to Mass. Dept. of Public Health

AIDS:
(617) 983-6560

Sexually Transmitted Diseases:
(617) 983-6952

Chancroid
Chlamydial Infections (genital)
Genital Warts
Granuloma Inguinale
Gonorrhea
Herpes, Neonatal
(onset within30 days after birth)
Lymphogranuloma Venereum
Opthalmia Neonatorum
a) Gonococcal b) Other Agents
Pelvic Inflammatory Disease
a) Gonococcal
b) Other agents
Syphilis

Tuberculosis:
1-888-MASSMTB
(24 hours/7days)

Rabies Post-exposure Prophylaxis : 617-983-6800

Work-related Diseases & Injuries Reportable to Mass. Dept. of Public Health.

For info. on reporting contact Occupational Health Surveillance Program; call: 617-624-5632

◆ **Occupational Lung Disease**
a) Asbestosis
b) Silicosis
c) Beryllium Disease
d) Chemical Pneumonitis
e) Asthma caused by or aggravated by workplace exposures

◆ **Work-related Heavy Metal Absorption**
a) Mercury (blood > 15 ug/l; urine >35 ug/grams creatinine)
b) Cadmium (blood > 5 ug/l; urine >5 ug/grams creatinine)
c) Other

◆ **Work-related Acute Chemical Poisoning**
a) Carbon Monoxide
b) Pesticide
c) Other

◆ **Work-related Carpal Tunnel Syndrome**

◆ **Work-related injury to a person less than 18 years of age**

Questions????????
Contact the Communicable Disease Surveillance Program at 617-983-6801

Confidentially Speaking

STD case reporting

Reports of sexually transmitted diseases are made directly to the Division of STD Prevention. This is different from the reporting protocol for most diseases, which go through the local boards of health. It is done this way as an additional measure to protect confidentiality. Reporting cards for clinicians to use are available from the Division by calling (617) 983-6940.

Report cards not only provide demographics about the person and what follow-up in terms of treatment and partners has occurred, but they also provide the clinician with information about treatment guidelines. The cards provide opportunities for the clinician to request information or other services from the Division. Laboratories report their significant findings either by sending results to a dedicated electronic mailbox, a fax machine (617-983-6962) located in a locked and restricted area, on a computer disk, or through the mail. Significant laboratory reports trigger a call to the clinician to confirm that the finding is indicative of a case.

The work of the Division is rooted in trust; it is essential that personal and sensitive information is kept confidential. Without this, we could not do our job of STD prevention. The case records and laboratory information are protected by technical and legal measures. Access to the STD databases is controlled through passwords which are changed frequently. The surveillance computers and paper forms are located in a locked office; entry requires a code. There are only two ways for data with personal identifiers to legally leave the database. The first is if the person requests, in a notarized letter, a copy of their own file. The second is via a judicial order. The records can only be demanded by a judge, who then reviews it to see if the information is relevant to the legal case being heard. A Division manager hand-carries the file to the judge and stays until the file's relevance is determined. The manager will then return to the Division with the file, ensuring that no one else sees it. The data can not be subpoenaed by a lawyer.

Surveillance and epidemiologic data are used extensively for program planning and evaluation purposes. The data direct us to where services are most needed, what sorts of services are appropriate, and for whom. The case data are also used for professional purposes and by community-based service agencies. In such circumstances, the data are available only in aggregate form in routine or customized reports, that will not allow for identifying any individuals.

You be the epi

A young man who is an upwardly mobile businessman and describes himself as heterosexual has been contacted by the STD Division epidemiologist about a recent exposure to gonorrhea. Although he has health insurance, he agrees to be seen in an STD clinic to ensure confidentiality. He denies discharge, pain or other symptoms. When the provider performs a routine STD exam on him, no lesions are found on the genitalia, and no discharge or tenderness are noted. The gram stain from the urethra was negative for gram negative intracellular diplococci (the bacteria that cause gonorrhea). The patient says he did not have unprotected anal sex, but after being asked by the provider, he agrees to have a rectal culture done.

The tests done at the clinic are negative, but additional time is required for results from more definitive culture tests. The patient is asked to call back in two days for the results of the culture. The provider also recommends that the patient receive preventative treatment because the Disease Intervention Specialist (DIS) has indicated the original patient had urethral gonorrhea.

When the patient calls back for his culture results, he is told they are negative. Now he is angry and claims that the DIS and the STD clinic staff do not know what they are doing! What issues of STD investigation and services does this illustrate?

Analysis

The providers failed to perform a thorough sexual assessment to identify all the possible sites of exposure; the patient could have had oral sex and be infected in the pharynx. Therefore, an incomplete sexual history and clinical examination meant that a throat culture was never performed. The providers and staff also made an incorrect assumption—a patient's stated sexual orientation may not always be an accurate indicator of the full range of his/her sexual behavior.

Reportable diseases updated

The Massachusetts List of Reportable Diseases has been updated and is now available in a new format (see pages 4 and 5). This chart replaces the 1994 List of Reportable Diseases. For additional copies or questions, call the Division of Epidemiology and Immunization at (617) 983-6800. This chart is also available on the Massachusetts Department of Public Health's website: http://magnet.state.ma.us/dph/ under the "Provider Information" section.

Immunization

Spotting new measles activity

An outbreak of measles occurred in Massachusetts during May 1997. Seven cases were among students at a public elementary school in Andover. The eighth case was in a 9-month-old unvaccinated infant who was exposed to the virus in a physician's office. One of the students had previously received two doses of MMR, but the other six had received only one dose of MMR.

Several of the infected students traveled to neighboring states and participated in town-wide sports events during their infectious periods, which necessitated extensive control efforts. Health departments in Maine, Rhode Island, and New Hampshire were notified. In consultation with the Centers for Disease Control and Prevention (CDC), a decision was made that all susceptible students, staff, and contacts in the Andover public and private school system needed to receive a dose of MMR vaccine. In addition, day care and preschool centers in Andover, North Andover, and Tewksbury were notified that immunization was also recommended for their students and staff. In a collaborative effort with the Andover Board of Health, the public and private schools of Andover, the local VNA, and MIP staff, some 1,900 individuals were immunized in clinics held in Andover between May 27 and June 5, 1997.

International importation of measles continues to be a source of concern. During July 1997, there were three laboratory confirmed cases of measles in Massachusetts that appear to have sources in Ukraine, Greece, and France/Belgium respectively. In the first two situations, the cases were foreign-born students with no documentation of measles vaccination. The third imported case was in an unvaccinated U.S. adolescent with a religious exemption to immunization. There was secondary spread from these three cases to three other individuals.

There has been a 99% decrease in the annual reported incidence of measles in the United States since 1963, when measles vaccine was licensed. However, outbreaks, particularly among school-aged children, who have only received one dose of measles vaccine, and international importation of measles into the United States continue to occur. By requiring two doses of measles vaccine at school entry, Massachusetts is "on target" to achieve full two dose coverage of all students, kindergarten through college, by 2001. Through this policy and enhanced surveillance, we expect to continue reducing measles incidence in Massachusetts.

New Varicella Immunization Requirement for Day Care Attendance

Effective August 1, 1998, one dose of varicella vaccine, or physician-certified reliable history of chickenpox, will be ***required*** for all children who are:

1) 19 months of age or older, and enrolled in a licensed group or family day care center; and
2) who were born on or after January 1, 1997.

Please note: The new *Certificate of Immunization* includes a section for past history of disease.

Reliable history is defined as:

1) physician interpretation of parent/guardian description of chickenpox;
2) physician diagnosis of chickenpox; or
3) serologic proof of immunity.

Day care and school personnel will ***not*** be making these determinations.

DNA testing to evaluate TB

Tuberculosis contact investigations have been conducted using the concentric circle theory approach for identifying persons exposed to an active case of infectious disease. However, despite efforts to identify appropriate contacts, potential contacts continue to go unidentified.

Recently, DNA molecular typing methods have assisted in evaluating TB contact investigations. In Massachusetts, the Division of TB Prevention and Control has begun a study in which an isolate from each laboratory confirmed case is sent to the Northeast Regional RFLP Laboratory in New York for DNA typing using restriction fragment length polymorphism (RFLP)-based technology.

Since DNA fingerprinting analysis can be useful as additional evidence in cases of suspected transmission, for the past two years Massachusetts has been sending isolates from cases with an identified source case for DNA testing to confirm epidemiologic links. In addition, isolates have been sent from cases with similar environmental exposures, such as homeless shelter, correctional institution or worksite.

Results. Of 36 persons with reported exposure and for whom RFLP results were available, 19 (53%) demonstrated exact DNA matches, 3 (8%) displayed probable matches (DNA fingerprint patterns similar, but not an exact match), and 14 (39%) did not match. Of 28 isolates sent for confirmation of possible environmental exposure, 12 (43%) did not match, while 16 (57%) revealed matches. Three matches were unexpected: one arose from a homeless-related exposure (a health care worker in a shelter); two from the same prison at different times; and one from a prison and a shelter.

Conclusions. Although slightly more than half of the epidemiologic links were verified by matching DNA fingerprints, 39% of the cases identified through traditional contact investigation methods did not have molecular evidence of relatedness to the suspected source case. In fact, suspected linked cases among foreign born persons were 2.33 times more likely not to have been infected by the reported source case, even in cases living in the same household. However, DNA fingerprinting did support a link in 59% of persons with potential environmental exposures, suggesting that ongoing transmission is occurring in some areas.

This data raises questions about current definitions of contact exposure and methods of obtaining contact information. It is also possible that current molecular epidemiology may be misleading in some cases. As molecular epidemiology contributes new data, contact investigation may change. In particular, for persons from shared environments, other methods may be needed to identify contacts.

Isoniazid Toxicity Policy

Based on recommendations from the American Thoracic Society and the CDC, the Massachusetts Division of Tuberculosis Prevention and Control recommends the following for monitoring patients receiving isoniazid (INH) as part of a treatment regimen for active disease or as preventive therapy:

1. At any age:
a) The patient should be educated to the symptoms of toxicity and told to stop all medications immediately if symptoms are present, and notify the treating clinician. Abdominal discomfort, nausea, anorexia, and malaise are the most common early symptoms of INH hepatitis. Jaundice and dark urine occur later in hepatitis.
b) Monthly monitoring (face-to-face visit) by a licensed health care provider is essential to assess for toxicity and support adherence.

2. Under age 35:
a) Baseline ALT (SGPT) only*, to detect underlying hepatic disease. Although INH toxicity is uncommon under age 35, viral hepatitis may be prevalent - especially in patients from endemic countries, or with a history of injecting drug use. Without a normal baseline value, it is difficult to evaluate a subsequent abnormal ALT (SGPT) or AST (SGOT). Children 15 years old and younger without a history or symptoms of liver disease *need not have a baseline SGPT* because INH toxicity is uncommon in this age group, and unnecessary blood tests are a disincentive to follow-up.
b) No routine ALT (SGPT) is needed after the baseline unless the patient exhibits symptoms consistent with hepatitis or is at high risk for toxicity because of underlying liver disease or high risk behavior.
c) Additional liver function tests, AST (SGOT), bilirubin, alkaline phosphatase, LDH, hepatitis serologies, etc., should be obtained if the patient is symptomatic or has an abnormal ALT (SGPT).

3. Age 35 and over, and black and Hispanic women >12 years of age:**
a) Baseline and monthly ALT (SGPT). Elevations of ALT (SGPT) of up to 5 times normal without symptoms is common and does not require stopping INH. Close clinical and laboratory follow-up is recommended while liver function tests are abnormal.
b) Full battery of liver function tests, AST (SGOT), bilirubin, alkaline phosphatase, LDH, hepatitis serologies, etc., should be obtained if the patient is symptomatic or has an abnormal ALT (SGPT).

*ALT (SGPT) is more specific for liver injury than AST (SGOT) which can be elevated due to other causes. Although either test can be used as an inexpensive screening test for INH hepatitis, ALT (SGPT) is preferred due to its greater specificity.
**Higher than expected rates of INH hepatitis have been observed among postpubescent black and Hispanic women.

CD UPDATE
State Laboratory Institute
305 South Street
Boston, MA 02130

TB Announcement

The Division of Tuberculosis Prevention and Control is currently modifying the present PPD distribution system, effective November 1997. The new system will be similar to vaccine distribution. It will ensure local boards of health an uninterrupted supply of PPD *regardless of temperature conditions* and will allow convenient opportunities to pick up the product.

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Howard K. Koh, MD, MPH, Commissioner

To subscribe, please call Debra Thimas at (617) 983-6800

Bureau of Communicable Disease Control (617) 983-6550
Alfred DeMaria, Jr., MD, Assistant Commissioner

AIDS Surveillance Program (617) 983-6560
Lisa Gurland, RN, PsyD, Director

Division of Epidemiology and Immunization (617) 983-6800
Karin Gregory, JD, MPH, Director
Susan Lett, MD, MPH, Immunization Medical Director
Bela Matyas, MD, MPH, Epidemiology Medical Director

Refugee and Immigrant Health Program (617) 983-6590
Jennifer Cochran, MPH, Director

Division of STD Prevention (617) 983-6940
Paul Etkind, MPH, Director

Division of Tuberculosis Prevention and Control (617) 983-6970
Sue Etkind, RN, MS, Director

Managing Editors Janine Cory, MPH, David Gray, Allison Hackbarth, MPH

Contributing Editors Christine Burke, MPH, MSW; Kathleen S. Hursen, RN, MS

Design Caryl A Haddock

Proofreader Emily Harvey, RS

Editor - Electronic Edition Timothy Broadbent

Save the dates

CDC Satellite Training Courses

Hepatitis C: Diagnosis, Clinical Management, Prevention
November 22, 8–11:00 AM. To be held at the State Lab Institute in Jamaica Plain. To register for credits ($25), call the Hepatitis Foundation International at (800) 891-0707. Deadline is November 1. For logistic information call Walt Lasota at (617) 983-6834.

Surveillance of Vaccine-Preventable Diseases
December 4, 12:00–3:30 PM. To be held at the State Lab Institute in Jamaica Plain. For more information call Jean Franzini at (617) 983-6850.

Upcoming Courses for 1998:

Vaccine Safety
February 26, 1998

The Epidemiology and Prevention of Vaccine-Preventable Diseases
April 9, 16, 23, 30, 1998 (4-day course)

Adult Vaccine Preventable Diseases
June 4, 1998

These programs will be carried live by the Health and Sciences Television Network (HSTN) and by the Long Term Care Network (LTCN). For more information to downlink your site or attend a program, please call Jean Franzini at (617) 983-6850.

TB Tomorrow

Ted Badger Conference
Planned for March 24, 1998

STD Annual Update

November 20, at the Colonial Hilton in Wakefield. For more information, call Wendy Hylton at 983-6945.

1997 Immunization Guidelines

The immunization schedule has been updated, as recommended by the Advisory Committee on Immunization Practices (ACIP) and the American Academy of Pediatrics (AAP), and is included (as an insert) in this issue of *CD Update*. *For* further information about the schedule, contact the Massachusetts Immunization Program at (617) 983-6800, or your Regional Immunization Office (numbers below).

Boston (617) 534-5609
Central (508) 792-7880
Metro: Jamaica Plain (617) 983-6860
Canton (781) 828-7700
Northeast (978) 851-7261
Southeast (508) 947-1231
Western (413) 545-6600